

PCT

WORLD INTELLECTUAL
Property

INTERNATIONAL APPLICATION PUBLISHED U



WO 9531945A1

(51) International Patent Classification 6 :
A61F 2/06

A1

(21) International Application Number: PCT/US95/06228

(22) International Filing Date: 18 May 1995 (18.05.95)

(30) Priority Data:
08/246,320 19 May 1994 (19.05.94) US

(71) Applicant (for all designated States except US): SCIMED
LIFE SYSTEMS, INC. [US/US]; One Scimed Place, Maple
Grove, MN 55311 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BURMEISTER, Paul, H. [US/US]; 8554 Quarles Road North, Maple Grove, MN 55311 (US). EUTENEUER, Charles, L. [US/US]; 1951 Lander Avenue N.E., St. Michael, MN 55376 (US). BROWN, Brian, J. [US/US]; 178 Jandel Avenue N.E., Hanover, MN 55341 (US). FORDENBAUCHER, Paul, J. [US/US]; 3015 James Avenue South, Minneapolis, MN 55408 (US). VRBA, Anthony, C. [US/US]; 1266 88th Place North, Maple Grove, MN 55369 (US).

(74) Agents: ARRETT, Oliver, F. et al.; Vidas, Arrett & Steinkraus, Suite 1540, 920 Second Avenue South, Minneapolis, MN 55402 (US).

(81) Designated States: CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published

With international search report.
With amended claims.

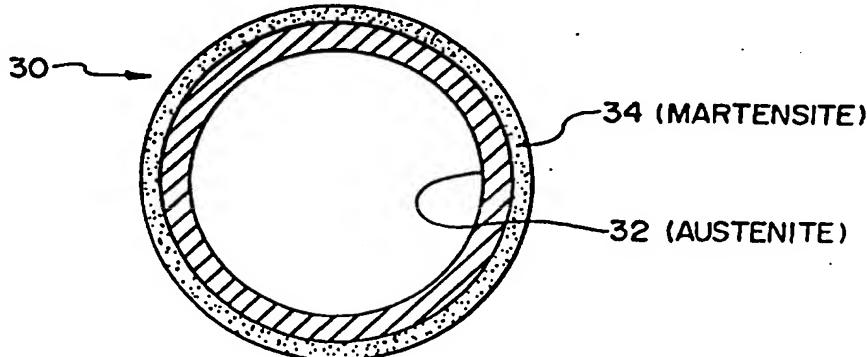
Date of publication of the amended claims:

1 February 1996 (01.02.96)

(54) Title: IMPROVED TISSUE SUPPORTING DEVICES

(57) Abstract

A new multiple component stent (10) which allows for initial self-expansion and subsequent deformation to a final enlarged size. In one embodiment, stent (10) comprises a first resilient element (12) and a second deformable element (14). In another embodiment, stent (30) is made of a first austenite component (32) and a second martensite component (34).



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Larvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

AMENDED CLAIMS

[received by the International Bureau on 28 December 1995 (28.12.95);
new claims 22-30 added; remaining claims unchanged (1 page)]

deployment diameter smaller than the predetermined fabricated diameter and upon transformation of the austenite phase portion from martensite back to austenite to self-expand the stent back to the austenite phase portion predetermined fabricated diameter at temperatures in excess of the transition temperature of the austenite superelastic portion, the shape memory of the superelastic austenitic portion tending to form the austenitic portions of the stent to the fabricated diameter parent shape due to its shape memory, with the martensitic portions remaining in the deployment shape, additional recovery back toward the stent fabricated diameter parent shape can be assisted by an external force deforming the martensitic portion without slip deformation to an enlarged stent diameter beyond that of the self-expanded austenitic portion diameter, but not greater than the stent fabricated diameter parent shape.

22. The stent of claim 20 wherein the alloy is a NiTi nitinol alloy.
23. The stent of claim 22 wherein the alloy compositions is about 50Ni/50Ti atomic weight percent.
24. The stent of claim 20 wherein the alloy is a cold worked alloy.
25. The stent of claim 20 wherein the alloy is NiTi (nitinol).
26. The stent of claim 20 wherein the alloy is a prestrained alloy.
27. The stent of claim 26 wherein the alloy is NiTi (nitinol).
28. The stent of claim 20 wherein the alloy exhibits cycle amnesia.
29. The stent of claim 28 wherein the alloy is NiTi (nitinol).
30. The stent of claim 21 wherein the two phase portions comprise a single alloy.